

**UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK**

CITY OF PROVIDENCE, RHODE ISLAND,
et al., Individually and on Behalf of All Others
Similarly Situated,

Plaintiffs,

vs.

BATS GLOBAL MARKETS, INC., *et al.*,

Defendants.

Civil Action No. 1:14-cv-02811-JMF
(**Consolidated**)

**MEMORANDUM OF LAW IN SUPPORT OF DEFENDANTS’
MOTION TO EXCLUDE THE OPINIONS AND TESTIMONY OF DAVID LAUER**

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Defendants New York Stock Exchange, LLC, NYSE Arca, Inc., Chicago Stock Exchange, Inc. (n/k/a NYSE Chicago, Inc.), BATS Global Markets, Inc. (n/k/a Cboe Bats, LLC), Direct Edge ECN, LLC, The Nasdaq Stock Market LLC, and Nasdaq BX, Inc. (collectively, “Defendants”) respectfully submit this memorandum of law in support of their motion to exclude the opinions and testimony of David Lauer that have been offered by Plaintiffs in support of their motion for class certification, including the Expert Witness Report of David Lauer dated May 28, 2021 (“Lauer Report”) (ECF 619-1).

INTRODUCTION

When Mr. Lauer first learned about this litigation in 2014, he tweeted:

“They’re basically suing ‘the market’. Seems like a seriously frivolous suit [without] much industry understanding.” Declaration of Douglas Henkin dated July 26, 2021 (“Henkin Decl.”) Exhibit B (Tweet by David Lauer, April 25, 2014).

Speaking to a Reddit/YouTube audience on May 5, 2021, 23 days before submitting the Lauer Report, he stated:

“I’m biased ... I worked with the guys at IEX [a competitor to the Defendants’ exchanges in this case that is *not* a defendant] ... I have owned equity in it.” Henkin Decl. Exhibit A 107:19-25 (Deposition Transcript of David Lauer, June 23, 2021) & Exhibit C at 41 (Transcript of Superstonk YouTube segment, May 5, 2021).

Lauer *currently* owns equity in IEX (Henkin Decl. Ex. A 106:6-9) and has encouraged investors to ask that their orders be sent to IEX instead of other exchanges (*id.* 109:8-11). And when discussing high frequency trading on June 17, 2021, 20 days after submitting the Lauer Report and 6 days before his deposition, Lauer said:

“I would never say -- you know, I would never accuse anybody specifically of manipulating markets or anything like that.” Henkin Decl. Ex. A 158:14-21 & Ex. D at 9 (Transcript of CNBC Interview of David Lauer, June 17, 2021).

Nor did he address manipulation in his report here. Indeed, he testified under oath that he is not offering any opinions on any elements of a Section 10(b) cause of action and he does not even list the Second Consolidated Class Action Complaint (“SCAC,” ECF 252) as something he relied on for any purpose.

Lauer does not actually evaluate (i) the use, by anyone, of any of the at-issue services or products, (ii) anyone’s actual trading behavior, or (iii) whether any behavior by anyone manipulated markets or otherwise violated Section 10(b). Lauer’s model is based on hypothetical “markouts”—essentially unrealized hypothetical profit or loss on an executed resting order measured by a hypothetical price one second after execution—that, he claims, measure “adverse selection” resulting from a “latency arbitrage” strategy.¹ But neither “adverse selection” nor “latency arbitrage” violates Section 10(b). Lauer’s model is unprecedented in securities litigation and has never previously been accepted as reliable evidence of the existence of a Section 10(b) violation or as a means of assessing harm caused by a Section 10(b) violation. The opinions he offers have nothing to do with Plaintiffs’ Section 10(b) claims, and should be excluded for that reason alone.

Lauer’s hypothetical “markouts” do not even reliably measure “adverse selection” or “latency arbitrage.” *See* Hendershott Report ¶¶ 226-30, 239-92. Lauer’s methodology is unreliable for five reasons: (i) his list of “HFTs” is arbitrary and lacks evidentiary support;

¹ “Adverse selection” refers to a situation in which one participant to a trade has superior information about the future price movement of the security. Expert Rebuttal Report of Prof. Terrence Hendershott dated July 26, 2021 (“Hendershott Report”) ¶ 250 (attached as Exhibit 1 to the Declaration of Elisha Barron in Support of Defendants’ Opposition to Motion For Class Certification dated July 26, 2021 (“Barron Decl.”)). “Latency arbitrage” refers to a trading strategy that seeks to take advantage of moments when two venues are quoting different prices for the same security—the arbitrageur would buy on the lower-priced venue and sell on the other, or vice versa. *Id.* ¶¶ 251-53.

(ii) he does not even attempt to control for all the other factors that he concedes—including *in Tweets sent today, while this memorandum was being finalized, see infra II.B*—will contribute to the “markouts” he measures, instead assuming (without evidence) that “markouts” are always and only caused by “adverse selection” resulting from use of the exchanges’ at-issue services; (iii) his method has no known error rate, nor would it even be possible to assess its error rate; (iv) his sampling methodology is invalid; and (v) when Lauer’s method is applied to *HFTs’* resting orders, the results show that—contrary to his principal hypothesis—HFTs’ resting orders *have the same or worse* negative average “markouts” as the “non-HFTs,” on four of the five exchanges he studied. Lauer offers nothing other than gross generalizations which he concedes do not address whether or to what extent any particular market participant experienced any actual economic loss or, if they did, why.

Admitting Lauer’s opinions would be the equivalent of allowing Section 10(b) claims to be asserted on behalf of a class on a strict liability basis for conduct there is no evidence was or is illegal. By proffering Lauer’s opinions, Plaintiffs are, *sub silentio*, asking this Court to allow a claim they never actually pled and that does not exist in the Securities Exchange Act of 1934. The opinion Lauer offers is also precisely what the Court cautioned Plaintiffs not to submit, *two days* before they filed their motion for class certification. *See* May 26, 2021 Tr. at 17:4-8 (“I am certainly not going to allow plaintiffs to pull a bait and switch or, you know, move the target or whatever metaphor it is you want to use and alter the playing field materially down the road whether in expert reports or otherwise”).

Accepting Lauer’s methodology would not just create a strict liability claim, it would do so for conduct that Plaintiffs’ own agents knew about, *during the proposed Class Period*, and which one of those agents candidly admitted was “perfectly legal.” *See* Hendershott Report

¶ 212(a) (one of Plaintiffs’ broker-dealers wrote *in 2009* that “latency arbitrage is perfectly legal”). Because the effect of latency arbitrage is all Lauer even purports to measure, his proposed methodology would assign “damages” on a no-fault basis for conduct that was well known to market participants and “perfectly legal.” Lauer’s methodology is the epitome of the type of created-for-litigation expert theories that courts routinely exclude. *See Nemes v. Dick’s Sporting Goods, Inc.*, No. 17-CV-1688 (NSR), 2019 WL 3982212, at *13 (S.D.N.Y. Aug. 23, 2019).

Because Lauer’s opinions are inadmissible under *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579 (1993) and Fed. R. Evid. 702, they should be excluded.

LEGAL STANDARD

Fed. R. Evid. 702 provides that:

A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if:

- (a) the expert’s scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;
- (b) the testimony is based on sufficient facts or data;
- (c) the testimony is the product of reliable principles and methods; and
- (d) the expert has reliably applied the principles and methods to the facts of the case.

The Second Circuit has “distilled Rule 702’s requirements into three broad criteria:

(1) qualifications, (2) reliability, and (3) relevance and assistance to the trier of fact.” *In re Namenda Indirect Purchaser Antitrust Litig.*, No. 1:15-cv-6549, 2021 WL 2403727, at *7 (S.D.N.Y. June 11, 2021); *see also Nimely v. City of New York*, 414 F.3d 381, 396–97 (2d Cir. 2005). “The party proffering the expert’s opinions ‘has the burden to establish the [Rule 702] admissibility requirements, with the district court acting as a ‘gatekeeper’ to ensure that the ‘expert’s testimony both rests on a reliable foundation and is relevant to the task at hand.’” *Id.*

Courts in the Second Circuit regularly subject proposed expert testimony to *Daubert*'s rigorous standards when their opinions are offered to support class certification motions. *See In re Aluminum Warehousing Antitrust Litig.*, 336 F.R.D. 5, 29 (S.D.N.Y. 2020).²

ARGUMENT

I. LAUER'S TESTIMONY IS NOT RELEVANT TO THE ISSUES IN THIS CASE

Rule 702 requires a determination of whether a proposed expert's testimony will assist the trier of fact, *see Nimely*, 414 F.3d at 397, which "goes primarily to relevance," *Daubert*, 509 U.S. at 591. "Expert testimony which does not relate to any issue in the case is not relevant and, ergo, non-helpful." *Raskin v. Wyatt Co.*, 125 F.3d 55, 66 n.5 (2d Cir. 1997); *see also Malletier v. Dooney & Bourke, Inc.*, 525 F. Supp. 2d 558, 572-73 (S.D.N.Y. 2007) (excluding expert because expert's methodology did not "fit" the theory of liability). The Lauer Report does not fit this case at all.

A. Lauer's Proposed Opinions Do Not Support A Section 10(b) Claim

Although Plaintiffs assert a securities fraud claim under Section 10(b), Lauer offers no opinions relating to *any* element of that claim, either on a classwide or individual basis.

- Lauer does not address whether the prices of any securities were manipulated or traded at artificial prices: "I don't believe I offered an opinion on price distortion or market manipulation in my report." Henkin Decl. Ex. A 134:16-18. Indeed, Mr. Lauer could not even state at his deposition whether he had an opinion that

² Given the severity of the relevance and reliability problems Lauer has, Defendants focus on those aspects of the Rule 702 analysis. But Lauer's qualifications are also tenuous. He is not an academic. He has never been qualified to testify as an expert witness by a court in the U.S. Although he does appear on cable news shows with some frequency, *see, e.g.*, Henkin Decl. Ex. D, some of his most prolific public commentary takes place on Reddit and YouTube channels dedicated to stocks such as GameStop and AMC. *See* Henkin Decl. Ex. A 55:6-57:20, Ex. C, Ex. E (Transcript of Matt Kohrs YouTube segment, June 18, 2021), Ex. F (Transcript of Benzinga YouTube segment, June 22, 2021) and Ex. G (Tweets of David Lauer, January 28 and June 2, 2021).

any trade listed in a Plaintiff's PSLRA certification was damaged by what he calls latency arbitrage. *Id.* 124:21-125:23.

- Lauer is not offering any opinions as to whether any market participants engaged in “queue jumping,” layering, or spoofing. *Id.* 157:21-24; 159:5-8. He “did not do a market manipulation study.” *Id.* 158:6-7.
- Lauer is “[d]efinitely not” “offering any opinions in this case about what is or isn’t legal under the Securities Exchange Act of 1934 or any SEC regulations,” or what violates any law at all. *Id.* 44:18-22; 149:19-150:12.
- Lauer is not offering any opinions that any Defendant gave any material, non-public information to any “HFT” firms. *Id.* 154:12-24. More specifically, he was not asked to opine on whether any exchange order types were intentionally selectively disclosed. *Id.* 169:4-8.
- Lauer is not offering any opinions regarding whether Plaintiffs’ equity securities trading was profitable during the proposed class period. *Id.* 155:2-156:2
- Lauer is not offering any opinions regarding the trading strategies used by Plaintiffs, including how long they intended to hold trades. *Id.* 156:4-10.
- Lauer does not offer any opinions regarding whether there were any misstatements or omissions.
- Lauer does not offer any opinions regarding anyone’s scienter.
- Lauer does not offer any opinions regarding reliance or transaction causation.
- As demonstrated in Point II, *infra*, Lauer offers no reliable opinions relating to loss causation.

Instead, Lauer is only offering opinions about how what he considers “stale resting limit orders” were supposedly affected by adverse selection. But that is not what is alleged in the SCAC. *See generally* ECF No. 252 ¶¶ 295-302. Because Lauer’s proposed opinions have *nothing* to do with the SCAC, they are inadmissible under *Daubert* and Rule 702.

So what *is* Lauer offering an opinion on? Execution quality: “I’m offering an opinion as to execution quality impacts of trades.” Henkin Decl. Ex. A 151:4-5. “Execution quality” is generally understood to include factors relating to trade executions such as the opportunity for price improvement, the likelihood of execution, the speed of execution, certain trading

characteristics of the specific security traded, and the reliability and service of the executing venue.³ “Execution quality” is an issue between a trader and that trader’s broker-dealer, not between a trader and an exchange.⁴ In short, “best execution” is a duty that broker-dealers owe to their customers, so an “execution quality” problem (if there is one) cannot be attributed to an exchange.

Finally, because Lauer has not taken into account any elements of Section 10(b) in proposing his opinions, the model he proposes necessarily is divorced from those elements. Plaintiffs are thus effectively proposing that the Court rely on Lauer’s opinions to support a Section 10(b) claim when his opinions do not even consider those elements. Lauer’s proposed methodology would turn a Section 10(b) claim into a no-fault insurance policy for certain investors, even though the Supreme Court explained in *Dura Pharms., Inc. v. Broudo*, 544 U.S. 336, 345 (2005), that Section 10(b) claims do not exist “to provide investors with broad insurance against market losses” A proposed expert opinion that would lead the Court down the path of implying a class-wide private right of action that would do exactly what the Supreme Court held impermissible in *Dura* cannot be admissible.

³ See R Battalio, S Corwin & R Jennings, Can Brokers Have It All? On the Relation between Make-Take Fees and Limit Order Execution Quality, *Journal of Finance* Vol. LXXI 2193, at 2197 (2016) (“Battalio (2016)”) (Henkin Decl. Ex. J). This article is included in Lauer’s list of reliance materials, Lauer identified Prof. Battalio as an authority on execution quality (Lauer Dep. 43:21-44:3), and Lauer is referenced as having commented while the article was being drafted, *see* Battalio (2016) at 2193 n*.

⁴ See FINRA Rule 5310(a)(1) (“In any transaction for or with a customer or a customer of another broker-dealer, a member and persons associated with a member shall use reasonable diligence to ascertain the best market for the subject security and buy or sell in such market so that the resultant price to the customer is as favorable as possible under prevailing market conditions.”); *see also* Exchange Act Release No. 34,902 (Oct. 27, 1994), 59 Fed. Reg. 55,006, 55,009 n.27 (1994) (“In its purest form, best execution can be thought of as executing a customer’s order so that the customer’s total cost or proceeds are the most favorable under the circumstances.”).

B. Lauer's Proposed Opinions Do Not Support Class Certification

Lauer's proposed opinions also do not support Plaintiffs' motion for class certification. Lauer's methodology requires extensive individualized inquiries. Lauer has not demonstrated anything about whether and to what extent any particular market participant was harmed. He did not even try, admitting that he is estimating only averages in his results. Henkin Decl. Ex. A 179:12-13 ("all of my calculations were share-weighted averages"). He does this despite admitting that "a non-HFT resting order facing an HFT with a positive markout, is [not] damaged," *id.* 179:14-16, which means that his model would assign damages to millions of trades that were not harmed in any way.

As to any trades for which his methodology produces a negative markout, attempting to determine whether that markout was caused by use of one or more of the Defendants' services cannot be determined using Lauer's proposed model, because (i) he made no attempt to separate out all the possible causes of negative markouts and (ii) he conceded that his proposed model cannot do so. *See* Lauer Report at 27 n.54; Henkin Decl. Ex. A 120:10-12 ("the model ... it's not able to disentangle all the different things that could lead to adverse selection"); *id.* 169:18-23 & 182:7-16.

The only way to disentangle all the factors that impacted a negative markout on a specific order would be to analyze the details around each trade. Hendershott Report ¶ 259. But Lauer made no effort to create a model that could do that, nor did he try to identify any particular orders that were executed on Defendants' exchanges at stale prices. Henkin Decl. Ex. A 153:20-23. As the Supreme Court has established, "a model purporting to serve as evidence of damages in [a] class action must measure only those damages attributable to [Plaintiffs'] theory" of harm. *Comcast Corp. v. Behrend*, 569 U.S. 27, 35 (2013). "If the model does not even

attempt to do that, it cannot possibly establish that damages are susceptible of measurement across the entire class[.]” *Id.* Although Lauer acknowledged that “[t]here are other reasons” that could generate a negative markout, he “do[es]n’t see how you could have enough data and counterfactuals to start to disentangle everything.” Henkin Decl. Ex. A 160:20-24; 170:12-14. That means his proposed opinions cannot assist the Court with the rigorous inquiry Rule 23 requires, and they are thus inadmissible.

II. LAUER’S PROPOSED METHODOLOGY IS UNRELIABLE

When assessing whether a proposed expert’s testimony is sufficiently reliable to be permitted, the Court “should consider the indicia of reliability identified in Rule 702, namely, (1) that the testimony is grounded on sufficient facts or data; (2) that the testimony ‘is the product of reliable principles and methods’; and (3) that ‘the witness has applied the principles and methods reliably to the facts of the case.’” *Amorgianos v. Nat’l R.R. Passenger Corp.*, 303 F.3d 256, 265 (2d Cir. 2002) (quoting Rule 702). Lauer’s proposed opinions fail all aspects of the reliability analysis.

A. Lauer’s List of “HFTs” Is Arbitrary and Lacks Evidentiary Foundation

Lauer’s entire methodology depends on a bright-line characterization of firms: in his analysis, firms (or, more precisely, the Market Participant IDs (MPIDs) that appear in the exchanges’ data and are used to identify the member that submits an order to an exchange) are either “HFTs” (doing harm) or “non-HFTs” (being harmed). Describing his plan with respect to the markouts he will measure, Lauer claims that he will compare “two scenarios: one in which an HFT firm takes liquidity from a slower non-HFT firm, and one in which two slower non-HFT firms trade with each other.” Lauer Report 1-2. The central conclusions in his report are purportedly based on this comparison. *Id.* 30. And Lauer apparently believes that this comparison will reveal something about the use of the at-issue products and services. *Id.* 1.

Whether Lauer calls a given firm an “HFT” or a “non-HFT” is therefore critical to Lauer’s method. His categorization determines what markouts are calculated and whether a given firm’s customers might be eligible for damages under Lauer’s proposed model. Hendershott Report ¶¶ 270-75. Problems with the categorization of firms thus have implications for the reliability of his overall theory of harm as well as decisions about who might be in the proposed class, whether they might have suffered economic harm, and if so how much.

Yet despite being a fundamental building block of Lauer’s opinions, the methods Lauer uses for deciding whether to label a firm “HFT” or “non-HFT” are entirely unreliable. As Lauer has previously conceded, “HFT” is not a well-defined term. Henkin Decl. Ex. A 92:6 - 99:3; Henkin Decl. Ex. M at 7-8 (UNEP Inquiry and Ethical Markets Media, *Perspectives on Reforming Electronic Markets and Trading: Report of the Ethical Markets expert seminar*, December 2015); Hendershott Report ¶¶ 105-07. He bases his list of “HFTs” on a list prepared for unrelated reasons by Nasdaq and a blog post by a recruiting firm. Lauer Report 21 n.49; Henkin Decl. Ex. A 113:20 - 114:11. But Lauer examined nothing about the firms on his list: not their trading strategies; not their public statements; indeed, he did not even check whether each of these firms *purchased the at-issue products and services*. Henkin Decl. Ex. A 170:15-21 (“Did you examine -- for the entities that you listed in Appendix A to your report, did you examine which ones used co-location, which ones used proprietary data feeds, and which ones used certain order types? A. I did not. But I have familiarity with most of them from my time in the industry.”). His “familiarity with most of them” does not appear to be accurate—it is not clear that every firm he classified as an “HFT” even purchased the at-issue products and services, *see* Hendershott Report Ex. 7B & 8C, and there is no evidence in the record regarding what those that did use them for. Henkin Decl. Ex. A 112:10-13 (“Q. Is that Appendix A a list of the HFT

firms that you consider to be -- to engage in predatory behavior? A. This is just a list of HFT firms.”).

Indeed, Lauer did not investigate the facts surrounding *a single trade* to determine if the firm he labels “HFT” was co-located or made use of a proprietary data feed. Instead, he just uses his unreliable shortcut of pulling a subjective list of “HFT” firms and assuming that any order emanating from a firm on that list must have involved use of the at-issue products and services. This is not a reliable assumption, which is why he is forced to acknowledge that it is a speculative generalization. Lauer Report 26 (“[g]enerally speaking, HFT firms ... make use of every high-performance option offered by the exchanges”) (emphasis added); *see also* Hendershott Report ¶ 255.

Moreover, although Plaintiffs have focused on the supposed nefarious use of “complex order types” by purported HFTs since the inception of this case (*see* SCAC ¶¶ 136 -236), Lauer did not factor order types, “complex” or otherwise, into his proposed methodology. Instead, he testified that “we’re not really trying to distinguish between the advantages of certain order types” and he admitted that he did nothing to determine whether any of the firms that he categorizes as being “HFTs” used any particular order types. Henkin Decl. Ex. A 212:13-24; 233:6-21.

Lauer also does not investigate whether the party that he deems a “non-HFT” also may have been co-located or otherwise using the services at issue. Thus, while arguing that he can demonstrate how non-HFTs are disadvantaged by their counterparty’s use of latency reducing exchange services, Lauer neglects to check whether the purported victims were actually using the exact same services. Henkin Decl. Ex. A 231:9-15 (“Q. So are you offering fact testimony that agency desks for institutional brokers aren’t co-located, don’t use prop data and don’t use special

order types? ... A. I'm not offering fact testimony there, no."). In his deposition he was also asked "Does the methodology in your report apply to non-HFT limit orders regardless of whether or not their broker was co-located?" and he responded with an unqualified "Yes." *Id.* 183:22-25. The data also shows that at least one firm Lauer codes as "non-HFT" exhibited the same trading behavior as Lauer claims to measure in "HFTs," namely, engaging in "races" to fill resting orders. Hendershott Report ¶¶ 176-80.

Lauer's attempt at a broad-brush categorization of "HFT" and "non-HFT" firms has other significant defects. Lauer implements his categorization by looking to the executing broker's MPID and the counterparty broker's MPID. Henkin Decl. Ex. A 195:5-9 ("am I correct that you classified participants as HFT or non-HFT based solely on their MPID and not based on whether their trades were marked as agency or principal trades? A. That's correct."). But this means that if an "HFT" firm's trade was placed through another broker using sponsored access⁵ (a not-unusual practice), that trade might be classified as non-HFT. Hendershott Report ¶¶ 163-65. Similarly, if a large bank that Lauer considers generally non-HFT executed a low-latency strategy designed and implemented by the bank's internal HFT trading desk, that trade would also be classified as non-HFT based on the bank's MPID. Others would be classified in the opposite direction—an investor who placed a limit order but happened to do so using the execution services offered by an "HFT" firm would be classified as HFT, despite having a simple trading strategy completely unrelated to latency arbitrage. *Id.* All of these issues demonstrate that Lauer's categorizations of parties to trades as HFT or non-HFT is arbitrary.

⁵ As described by Lauer, "Sponsored access is when you are trading over the connection of a broker-dealer. They are sponsoring you for your access to markets. You trade through their pipes, but you don't trade through their systems necessarily." Henkin Decl. Ex. A 234:10-14.

Lauer has no relevant qualifications as an “HFT-tester” and his opinions about who is an “HFT” and who is a “non-HFT” are inadmissible. Because that is the core of his proposed analysis, it renders everything else he says inadmissible as well.

B. Lauer Makes No Attempt to Control For Other Variables

In his report, Lauer reviews a set of transactions and compares the price at which a “non-HFT’s” resting limit order was actually executed with a hypothetical market price—the midpoint of the NBBO one second after the actual trade executed.⁶ He *defines* the difference between those two price points as the “markout.” He considers the markout to be “negative” if (i) the party that placed the resting limit order is in Lauer’s “non-HFT” category and the counterparty that filled that order is in Lauer’s “HFT” category and (ii) the hypothetical market price, at some time after the trade, was lower (if the resting order was a buy) or higher (if it was a sale) than the price the “non-HFT” actually obtained.⁷ If those criteria are met, then Lauer considers the “non-HFT” that placed the resting limit order to have experienced a “negative markout” and to have been damaged by that trade.

Lauer claims that his proposed methodology “evaluate[s] services and products offered by the Exchanges” and “assess[es] whether there is an impact on trade execution quality *as a result of the use of these services*.” Lauer Report 1 (emphasis added). He then claims that he will “determine *whether these services* [allow] High Frequency Traders (HFTs) ... to pick off resting limit orders placed on behalf of institutional investors by slower broker-dealers before the

⁶ In Plaintiffs’ model, this market price is the midpoint of the National Best Bid and Offer (NBBO), which is the quote that reports the highest bid price and lowest offered price in a security, sourced from all available exchanges. This is a hypothetical price, not a price that was actually displayed to any participant. It is the *midpoint* between two displayed prices.

⁷ See Hendershott Report ¶ 228.

slower liquidity provider can react and adjust to new information.”⁸ *Id.* Despite claiming that those are the goals of his analysis, he makes no attempt to construct a methodology that could reliably demonstrate that the exchanges’ services caused anything. On the contrary, he repeatedly concedes that what he measures could have been caused by many other factors, and he makes no pretense of being able to disentangle those factors.

For example, Lauer contends that speed advantages can benefit traders who possess them, but acknowledges that “speed advantage originates from several places,” not just use of exchange services such as colocation. Lauer Report 12. Critically, he concedes that “[o]ne of those places is internal to the HFT firm.” *Id.* “HFT firms focus on software and hardware optimization to ensure that their systems are low latency.” *Id.* Despite that concession, Lauer makes no effort to control for internal speed advantages in order to isolate any purported effects from the exchanges’ services. Instead, he concedes in his results that “HFT advantages are considered as a complete set, rather than in isolation.” Lauer Report 27 n.54. In other words, he punted.

But that necessarily means that his proposed methodology cannot tell the Court anything about whether and to what extent a particular markout was caused by someone’s use of the at-issue products and services. When asked “how would you disentangle the advantage conferred by the systems [HFT firms] develop internally from the advantage that you say they get from -- from the use of co-location [and] prop[rietary] data feeds,” Lauer responded “I don’t know.” Henkin Decl. Ex. A 182:7-16. He similarly acknowledged that his proposed model “doesn’t --

⁸ It is not clear why Lauer refers only to “institutional investors” when the proposed class definition includes many other types of investors. Hendershott ¶¶ 51-55.

it's not able to disentangle all of the different things that could lead to adverse selection.” *Id.* 120:9-13.

In addition to speed resulting from internal systems, differences in execution quality can also be caused by other aspects of trading strategies. To the extent that a firm develops or updates an algorithm that deploys a successful trading strategy—or simply conducts additional proprietary research and analysis—price movements that follow a trade may have nothing to do with the speed of the taking order. Hendershott Report ¶¶ 241-44, 258-59. Conversely, an unsuccessful strategy can fail even if it is executed at maximum speed. Indeed, Lauer’s own findings indicate that the “HFTs” he contends are using every available speed advantage nonetheless *themselves* experience negative markouts under Lauer’s metric, often more so than non-HFTs. *See infra*, II.E. And he concedes that his “stale quote” scenario can happen in reverse, with a non-HFT firm being the aggressor against a resting limit order from an HFT firm. Henkin Decl. Ex. A 226:5 - 227:21. Lauer also agrees that “HFTs” compete with other “HFTs,” as well as with large banks, including to retain the most talented developers who can help the firms in their efforts to develop and update successful trading algorithms. *Id.* 181:5 - 182:6.

On the other hand, Lauer also does not take into account the different strategies employed by what he calls “non-HFTs,” some of whom choose to employ advertised strategies that directly contradict Lauer’s assumptions about how “non-HFTs” trade.⁹ In particular, some “non-HFTs” want their orders executed as quickly as possible and do not care about “adverse selection.” Hendershott Report ¶¶ 264-65; Henkin Decl. Ex. A 184:12 - 185:19. And Lauer’s assumption that all “non-HFT” traders would want to cancel and replace orders to avoid “adverse selection”

⁹ This is a serious methodological error. *See* Battalio (2016) at 2196 (“whether an investor who pays fees/earns rebates is indifferent to the broker’s routing decision depends crucially on the investor’s ultimate trading intentions”).

is (i) economically irrational because it fails to take into account more consequential price aspects of modern exchanges (Hendershott Report ¶¶ 264-65)¹⁰ and (ii) ignores the fact that Plaintiffs did not change their trading behavior *in any way* after supposedly becoming aware of whatever “scheme” they were attempting to allege in the SCAC. Henkin Decl. Exhibit H 157:8 – 158:19 (Dep. Tr. of Timothy Smyth, Dec. 11, 2020), & Exhibit I 92:25 – 96:25 (Dep. Tr. of Jeffrey Dana, Nov. 24, 2020).

Lauer’s methodology does nothing to account for these factors, just as he similarly ignores the important trading strategy considerations that may drive decision making by his purported victim “non-HFT” investors. Although as demonstrated in the prior paragraph, investors may have reasons to prioritize getting a trade done immediately and with certainty at the current price, rather than holding out for the possibility of a marginally better price later, Lauer disregards such considerations in favor of assuming that investors who hypothetically experience negative markouts must have been damaged. Henkin Decl. Ex. A 184:12 - 185:19. Proposed expert opinions based on flawed assumptions must be excluded. *See Bank of Am., N.A. v. Bear Stearns Asset Mgmt.*, 969 F. Supp. 2d 339, 358 (S.D.N.Y. 2013); *Johnson Elec. N. Am. Inc. v. Mabuchi Motor Am. Corp.*, 103 F. Supp. 2d 268, 284 (S.D.N.Y. 2000). Likewise, Lauer assumes that a one-second time difference is correct but gives no reason. But Prof. Battalio “follow[s] prior empirical literature and SEC Rule 605 in defining the post-trade share value based on the midpoint of the [NBBO] prevailing five minutes after the trade,” Battalio (2016) at 2202 n.11. Lauer provides no explanation for his decision to so drastically part ways with the

¹⁰ *See also* Battalio (2016) at 2196 (“if an investor is committed to trade and converts unfilled limit orders to marketable orders, she incurs additional trading costs on the higher-fee venue that we refer to as cleanup costs”).

individual he identified as “one of the top” experts in execution quality (Lauer Dep. 44:2-3) on this critical analytic choice with respect to purporting to measure execution quality.

Lauer also entirely fails to address the impact of trading that occurs on venues other than the Defendants’ exchanges. Although substantial volumes of trading occur on alternative venues and those trades can influence prices throughout the market, Lauer ignores those effects. One such effect from off-exchange trading is the widening of the “spread” between the respective bid and offer quotes in the NBBO, which in turn can impact the results of Lauer’s markout measurements.¹¹ Lauer was asked in his deposition “Does the amount of off-exchange trading widen spreads?” He responded “Yes” and “cite[d] ... a recent report that showed it can be by 25% or more at high levels of off-exchange trading.” Henkin Decl. Ex. A 86:21 – 87:6. Yet Lauer makes no effort to construct his methodology in a way that accounts for the way that changes in the NBBO spread as a result of off-exchange trading cause changes in his markout measurements. But Lauer’s view of the effect of off-exchange trading on spreads dwarfs the markouts he purports to calculate, and yet Lauer ignores that effect entirely in this case.

That is odd, as Lauer clearly considers *this issue* important to “adverse selection,” so much so that he Tweeted about it twice during the day this memorandum was filed. Lauer first Tweeted that “diverting [off-exchange] orders away from exchanges reduces profitability for on-exchange market makers. They widen their quoted spreads accordingly, 25% or more by some

¹¹ For example, if the NBBO bid quote for a security is \$9.99 and the offer quote is \$10.01, then the bid/ask spread is two cents and the midpoint is \$10.00. If a purchaser’s order is filled at the offer price (\$10.01) and nothing changes in the NBBO during the following second, then Lauer’s method would measure a negative markout of one cent. But if the bid/ask spread had been wider—for example if the NBBO bid quote was \$9.98 and the offer quote was \$10.02, for a bid/ask spread of four cents with the same midpoint of \$10.00—then Lauer’s method would measure a negative markout of two cents despite the NBBO midpoint being the same in both scenarios. Hendershott ¶ 294-95.

estimates. It increases costs to the entire market.” and then that “These internalizers then advertise that they are ‘price improving’ retail orders, but it’s against an artificially wide spread.” Henkin Decl. Ex. K. In case there was doubt about what he meant, later in the day Lauer tweeted “Siphoning off retail orders to internalizers increases adverse selection on lit markets, and increases execution costs.” Henkin Decl. Ex. L.

Finally, Lauer errs in equating negative markouts with “adverse selection” and thus conflates two distinct issues. *Compare* Ex. A 151:4-5 (“I’m offering an opinion as to execution quality”) *with id.* 152:25–153:2 (“I’m simply looking at adverse selection”). Adverse selection refers specifically to losses suffered to better-informed traders, a phenomenon that has been known since well before the beginning of the proposed class period and which is not manipulative.¹² Hendershott Report ¶¶ 293-295. By contrast, markouts capture all aspects of execution quality, including execution costs that have nothing to do with a loss to a better-informed trader. As noted in the literature that Lauer himself relies on, execution costs also encompass items relating to trade executions including the likelihood of execution, the speed of execution, and certain trading characteristics of the specific security traded. Battalio (2016) at 2197. But Lauer ignores those other costs and conflates the broad category of execution quality with a single subpart of that category—adverse selection.

Because Lauer’s methodology makes no attempt to control for other factors that contribute to markouts, his conclusion that the negative markouts he constructs are caused by users of the at-issue products and services is entirely speculative, not reliable, and not admissible.

¹² It is important to note that some amount of adverse selection is required for markets to operate: If no one disagrees on prices, no trades take place. *See* Hendershott Report ¶ 250. Lauer ignores this principle.

C. Lauer’s Method Has No Known Error Rate, and He Provides No Feasible Way to Estimate the Error Rate

This leads to an even more devastating problem for Lauer: There is no known error rate for his proposed methodology *and no way even to estimate one*. Without a known error rate, Lauer’s proposed opinions are inadmissible. *See Amorgianos*, 303 F.3d at 266.

As described above, it matters greatly whether Lauer calls a firm an “HFT” or a “non-HFT,” because that classification determines both whether the firm’s customers might be eligible for damages under Lauer’s proposed model and how the markouts are ultimately calculated. *See supra*, II-A. Hendershott Report ¶¶ 270-76. That is, it affects both sides of Lauer’s proposed analysis. In order to assess the “error rate” that might result from Lauer’s classifications, he would have to determine the average markouts for every possible combination of ways to classify all firms as “HFT,” “non-HFT,” or some combination (assuming that is possible, such as for firms providing sponsored access) for the entire proposed Class Period. Only by assessing all these possible combinations would it be possible to begin to assess the range of errors that might be caused by different classifications. Prof. Hendershott has estimated that there are at least 3.1×10^{349} potential combinations of “HFT”/“non-HFT” classifications that would need to be considered (Hendershott Report ¶ 343), and Lauer’s entire proposed markout analysis would have to be performed for each such combination. To put this in perspective, assume that Plaintiffs had at their disposal 100 billion computers running around the clock with no downtime, each able to test 100 trillion combinations of “HFT”/“non-HFT” classifications per day. It would still take approximately 8.5×10^{319} years (a number that would take more than four lines of text to write out) to run the tests needed to determine the error rate for potential misclassifications of firms (and this does not account for other potential sources of error). Lauer

has not proposed any method of assessing the error rate of his proposed methodology, let alone one that could be accomplished within a reasonable amount of time.

D. Lauer's Sampling Methodology Is Invalid

Lauer also does not use a statistically reliable sample to support his generalizations. Although Lauer calls his test a “preliminary” or pilot study, the unrepresentative nature of his sample means that there is no basis to conclude that a full implementation of this method would yield results anything like the results he obtains. As discussed further by Prof. Barnett, Lauer's sample is neither random nor representative. Expert Rebuttal Report of Prof. Arnold Barnett dated July 26, 2021 (“Barnett Report”) ¶¶ 19-24 (attached as Exhibit 2 to Barron Decl.). Lauer reviews trades associated with 100 of the most highly-traded securities and ignores all of the far more numerous remaining domestic equity securities. He does not examine any trades associated with the New York Stock Exchange, LLC or Chicago Stock Exchange, Inc. (n/k/a NYSE Chicago, Inc.).¹³ He only considers days in mid-May, claiming that this was done to avoid issues of “seasonality.” But as Prof. Barnett explains, if there are seasonal variations in markout patterns, then by definition any findings based only on mid-May trades cannot be extrapolated to the remainder of the year. Barnett Report ¶ 19. Lauer's proposed methodology thus cannot reliably support the results he claims. Accordingly, his opinions do not satisfy Rule 702 and should be excluded.

¹³ Lauer Report 19 (“we utilize trade data from the exchanges Nasdaq, Arca, BATS-Y, EDGE-X and EDGE-A”). When asked during his deposition why his report “doesn’t contain any measurements of markouts with respect to NYSE or CHX” Lauer incorrectly suggested that “I don’t believe we got ... that data,” before ultimately conceding that “I don’t remember why.” Henkin Decl. Ex. A 84:16–85:17.

E. Lauer's Own Methodology Does Not Support His Conclusions

Apart from the other methodological failures, Lauer's own results do not support his hypothesis that "non-HFT firms resting orders ... would show higher adverse selection costs" while "HFT firms trading with each other would have low levels of adverse selection." Lauer Report 25. In fact, Lauer's results indicate that when trading with other HFTs, HFT resting orders have the same or more negative average markouts than non-HFTs on four out of the five exchanges from which he draws his sample trades. Hendershott Report ¶ 242; Finnerty Report (ECF 619-2) at 24 (summarizing average markout results under Lauer's methodology). For example, on Arca, the second largest exchange Lauer attempted to examine, Lauer's results show HFT resting orders experiencing an average markout of -.0043 when trading with other HFTs, whereas non-HFTs have slightly *better* results with a markout of -.0041 in the same context. On the EDGA exchange, Lauer finds that non-HFT resting orders actually have an average markout of +.0009 and that they obtain better results than HFT resting orders, for which Lauer finds an average markout of +.0006. Lauer offers no explanation for these results—he simply excludes them from his proposed opinions.

Moreover, attempting to estimate an average markout in various scenarios cannot support a conclusion that a party to any particular trade was harmed. Indeed, Lauer's own data finds that the markout was zero or positive in substantial proportions of his "non-HFT"/"HFT" transactions. Barnett Report ¶ 27 n.29. Given this result, it would be illogical to use Lauer's averages to award a uniform average amount of purported damages to every trader that he categorizes as "non-HFT." Some of those parties actually experienced favorable post-trade price movement under Lauer's metric, but would receive windfall additional "damages" under Lauer's proposed model. At the same time, parties whose trades were followed by a markout more

negative than the average would be undercompensated even using Lauer's proposed methodology. These issues underscore that even if all of the other flaws in Lauer's methodology were ignored, his results cannot reliably estimate damages on a classwide basis.

CONCLUSION

For all of the foregoing reasons, Defendants respectfully request that the Court grant Defendants' motion and enter an order excluding the testimony and opinions of David Lauer.

Dated: July 26, 2021

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CERTIFICATE OF SERVICE

I, Douglas W. Henkin, certify that I caused a true and correct copy of the foregoing to be served on all counsel of record via the Court's ECF system on July 26, 2021.

/s/ Douglas W. Henkin
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